

FN-TRAN-SFP28-SR-OPC

Fortinet® FN-TRAN-SFP28-SR Compatible TAA 10/25GBase-SR SFP28 Transceiver (MMF, 850nm, 100m, LC, DOM)

Features

- SFF-8402 and SFF-8472 Compliance
- Duplex LC Connector
- Multi-mode Fiber
- Commercial Temperature 0 to 70 Celsius
- Hot Pluggable
- Metal with Lower EMI
- Excellent ESD Protection
- RoHS Compliant and Lead Free



Applications:

- 25GBase Ethernet
- Access and Enterprise

Product Description

This Fortinet® FN-TRAN-SFP28-SR compatible SFP28 transceiver provides 10/25GBase-SR throughput up to 100m over multi-mode fiber (MMF) using a wavelength of 850nm via an LC connector. It can operate at temperatures between 0 and 70C. Our transceiver is built to meet or exceed OEM specifications and is guaranteed to be 100% compatible with Fortinet®. It has been programmed, uniquely serialized, and tested for data-traffic and application to ensure that it will initialize and perform identically. All of our transceivers comply with Multi-Source Agreement (MSA) standards to provide seamless network integration. Additional product features include Digital Optical Monitoring (DOM) support which allows access to real-time operating parameters. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max	Unit
Storage Temperature	T _s	-40		85	°C
Relative Humidity	RH	5		95	%
Supply Voltage	V _{CC}	-0.5		4.0	V
Operating Case Temperature	T _c	0	25	70	°C

Electrical Characteristics

Parameter		Symbol	Min	Typ	Max	Unit	Notes
Supply Voltage		V _{CC}	3.135	3.3	3.465	V	
Data Rate				25.78		GB/s	
Module Supply Current		I _{CC}			290	mA	
Power Dissipation		P _D			1000	mW	
Transmitter							
Input Differential Impedance		Z _{IN}		100		Ω	
Differential Data Input Swing		V _{IN, P-P}	180		700	mV _{P-P}	
TX_FAULT	Transmitter Fault	V _{OH}	2.0		V _{CC}	V	TX_FAULT
	Normal Operation	V _{OL}	0		0.8	V	
TX_DISABLE	Transmitter Disable	V _{IH}	2.0		V _{CC}	V	TX_DISABLE
	Transmitter Enable	V _{IL}	0		0.8	V	
Receiver							
Output Differential Impedance		Z _O		100		Ω	
Differential Data Output Swing		V _{OUT, P-P}	300		850	mV _{P-P}	1
Data Output Rinse Time, Fall Time		t _r , t _f		30		ps	2
Rx_LOS	Loss of Signal (LOS)	V _{OH}	2.0		V _{CC}	V	RX_LOS
	Normal Operation	V _{OL}	0		0.8	V	

Notes:

1. Internally AC coupled, but requires a external 100Ω differential load termination.
2. 20-80%
3. LOS is an open collector output. Should be pulled up with 4.7Ω on the host board.

Optical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Transmitter						
Launch Optical Power	P _o	-7.6		+2.4	dBm	1
Extinction Ratio	ER	2			dB	
Center Wavelength Range	λ_c	840	850	860	nm	
Transmitter Dispersion Penalty @25.78GB/s	TWDP			5	dB	
Spectral Width (RMS) @25.78Gb/s	$\Delta\lambda$			0.6	nm	
Optical Return Loss Tolerance	ORLT			12	dB	
P _{out} @TX-Disable Asserted	P _{OFF}			-30	dBm	1
Receiver						
Center Wavelength	λ_c	840		860	nm	
Receiver Sensitivity (P avg)	S			-11	dBm	2
Receiver Overload (P avg)	P _{OL}	2.5			dBm	
Optical Return Loss	ORL	12			dB	
LOS De-Assert	LOS _D			-12	dBm	
LOS Assert	LOS _A	-30			dBm	
LOS Hysteresis		0.5			dB	

Notes:

1. 50/125 μ m fiber with NA = 0.2, 62.5/125 μ m fiber with NA = 0.275.
2. Measured with PRBS 231-1 at 10⁻⁴ BER @25.78Gb/s.

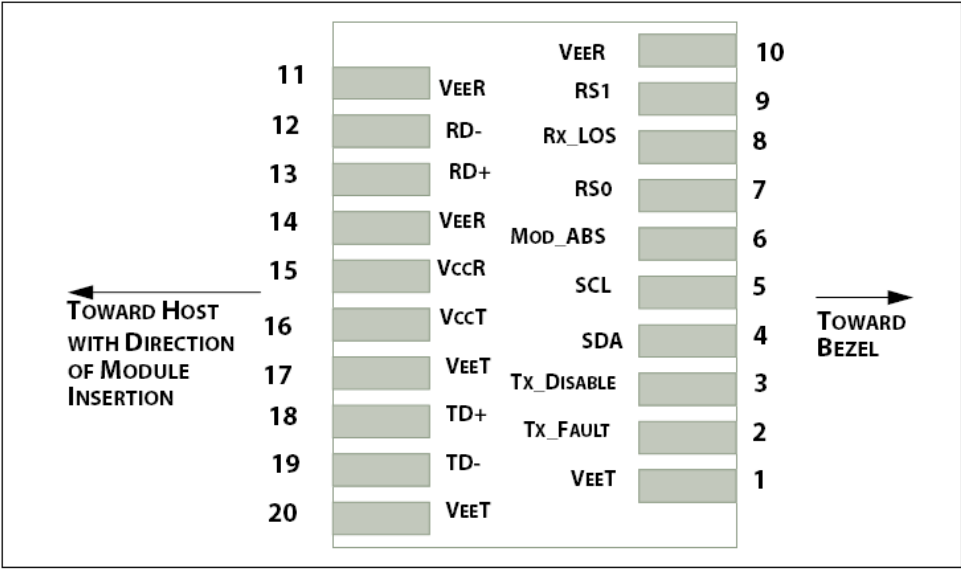
Pin Descriptions

Pin	Symbol	Name/Descriptions	Ref.
1	VeeT	Transmitter Ground	1
2	TX Fault	Transmitter Fault (LVTTL-O) - High indicates a fault condition	2
3	TX Disable	Transmitter Disable (LVTTL-I) – High or open disables the transmitter	3
4	SDA	Two wire serial interface Data Line (LVCMOS-I/O) (MOD-DEF2)	4
5	SCL	Two wire serial interface Clock Line (LVCMOS-I/O) (MOD-DEF1)	4
6	MOD_ABS	Module Absent (Output), connected to VeeT or VeeR in the module	5
7	RS0	Rate Select 0 – Not used, Presents high input impedance	6
8	RX_LOS	Receiver Loss of Signal (LVTTL-O)	2
9	RS1	Rate Select 1 – Not used, Presents high input impedance	6
10	VeeR	Receiver Ground	1
11	VeeR	Receiver Ground	1
12	RD-	Inverse Received Data out (CML-O), AC Coupled	
13	RD+	Received Data out (CML-O), AC Coupled	
14	VeeR	Receiver Ground	
15	VccR	Receiver Power - +3.3V	
16	VccT	Transmitter Power - +3.3 V	
17	VeeT	Transmitter Ground	1
18	TD+	Transmitter Data In (CML-I), AC Coupled	
19	TD-	Inverse Transmitter Data In (CML-I), AC Coupled	
20	VeeT	Transmitter Ground	1

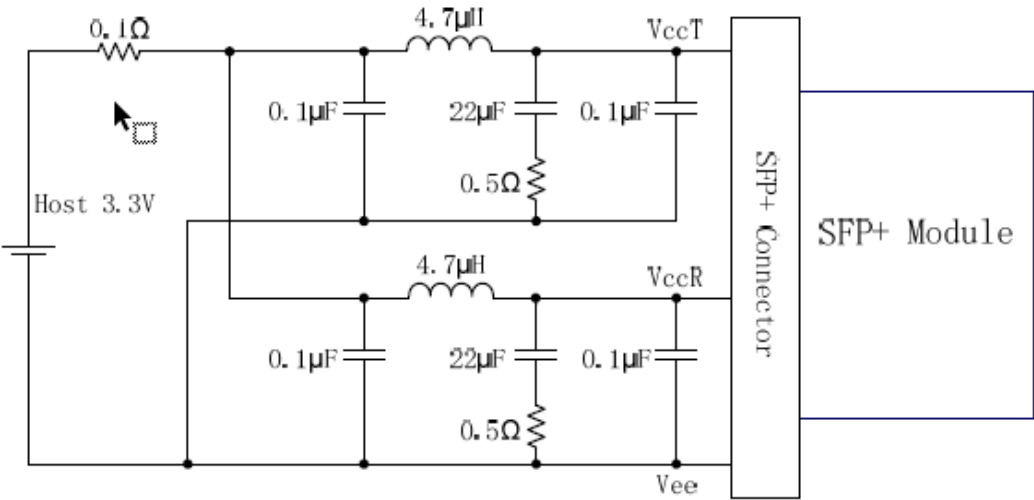
Notes:

1. The module signal grounds are isolated from the module case.
2. This is an open collector/drain output that on the hostboard requires a 4.7KΩ to 10KΩ pull-up resistor to VccHost.
3. This input is internally biased high with a 4.7KΩ to 10KΩ pull-up resistor to VccT.
4. Two-Wire Serial interface clock and data lines require an external pull-up resistor dependent on the capacitance load.
5. This is a ground return that on the host board requires a 4.7KΩ to 10KΩ pull-up resistor to VccHost.
6. Rate select can also be set through the 2-wire bus in accordance with SFF-8472 v. 10.2, Rx Rate Select is set at Bit 3, Byte 110.
Address A2h. Tx Rate Select is set at Bit 3, Byte 118, Address A2h.
Note: writing a “1” selects maximum bandwidth operation. Rate select is the logic OR of the input state of Rate Select Pin and 2-wire bus.

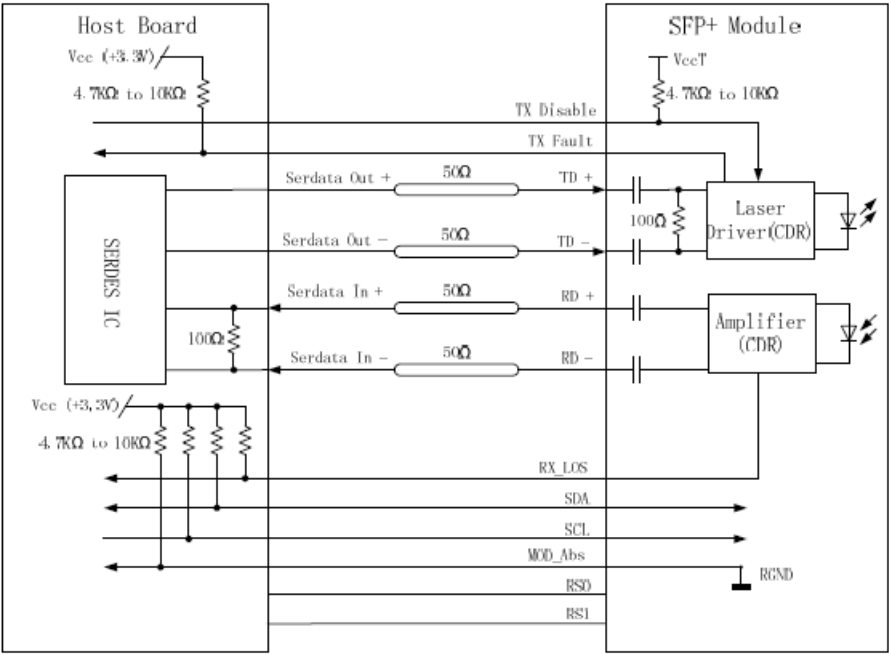
Host PCB SFP+ pad assignment top view



Recommended Host Board Power Supply Filter Network



Recommended Application Interface Block Diagram



Mechanical Specifications

